

sexual species. Results were not conclusive on the question of whether agamospermy is responsible for the formation of microspecies. This research on hybridization has shown clearly that *Amelanchier* × *neglecta* is a hybrid of *A. bartramiana* and *A. laevis*, with the apomictic *A. laevis* serving as the pollen parent. *Amelanchier* × *neglecta* is almost entirely agamospermous, with no evidence of backcrossing with its parents.

Other research on a confusing plant known informally as *Amelanchier* “humilopsis” suggests that it is an old hybrid of *A. humilis* and an unknown species, both agamospermous. This plant has an unusual multigene polymorphism that is maintained by agamospermy. Dr. Campbell has observed “humilopsis” and *A. laevis* hybridizing at a disturbed site, and hypothesizes that Fernald saw these plants as a child growing up in Orono.

It appears that agamospermy by itself does not generate variation in *Amelanchier*, but perpetuates the diversity that results from extensive hybridization. Future attempts to resolve the taxonomy of *Amelanchier* should identify and focus on the sexual species that are the oldest and most stable members of the genus.

**May 1996.** Dr. Gregory Anderson, of the University of Connecticut at Storrs, spoke on “The Origin and Evolution of the Pepino, One of the Forgotten Domesticates of the Incas.”

The Pepino (*Solanum muricatum*) is truly a lost crop, with no known wild progenitors. Domesticated prior to the Incas in the Ecuador/Columbia/Peru area, pepinos appear in pottery dating back 2,000–3,000 years, but were not much cultivated by Incan cultures. The name derives from the Spanish, who named it “pepino dulce” to distinguish it from the earlier-named “pepino” or cucumber. Now becoming more popular as a “dessert-quality subacid fruit” with a high vitamin C content, it is cultivated from Mexico to Chile as well as in New Zealand.

Pepinos exhibit great variation in fruit morphology, consistent with the “first law of economic botany,” which states that the greatest variation occurs in that feature for which the species was cultivated. The result of recent intensive cultivation has been a substantial loss in fruit diversity.

Morphological studies suggested that there were 3 candidates for the wild progenitor of pepino: *Solanum tabanoense*, *S. caripense*, and *S. basendopogon*. Studies by Greg and numerous collaborators have examined “traditional” biosystematic evidence

from breeding systems, genetic relationships, flavinoids, meiotic behavior, and mitotic chromosome structure. These studies suggested that relationships based on morphology should be revised, and indicated that *Solanum caripense* was most closely related to the pepino.

More recent studies have focused on molecular evidence using chloroplast and nuclear DNA sequencing. These DNA studies indicate that *Solanum tabanoense*, not *S. caripense*, is most closely related to the pepino. However, some collections of pepino were very similar to *S. caripense*. These data are best explained by the hypothesis that pepino was domesticated from *S. tabanoense*, and later was hybridized with *S. caripense*. The large range of morphological variation in the pepino is likely to be the result of this post-origin hybridization.

—LISA A. STANDLEY, Recording Secretary.